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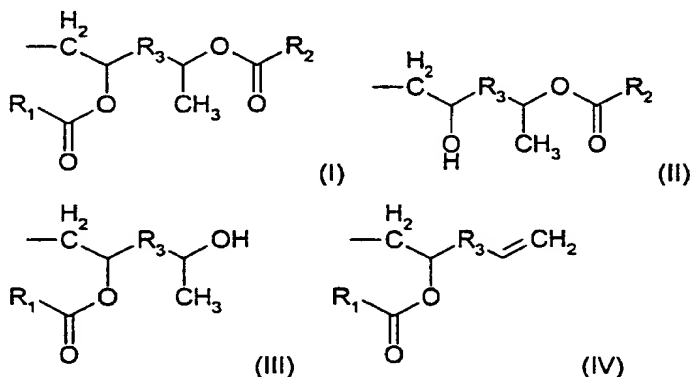
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(54) Title: ESTERQUATS, THEIR INTERMEDIATES, A PROCESS TO MAKE THE ESTERQUATS, AND THEIR USE



## (57) Abstract

Esterquats, their intermediates, a process to make the esterquats, and their use as a fabric softener wherein said esterquats are of the formula:  $\text{R}_4[\text{R}_5\text{R}_6\text{N}^+\text{Z}]_n \text{X}^-$ , wherein Z is covalently bonded to the nitrogen atom and selected from the group of formulae (I)–(IV), and isomers thereof, wherein  $\text{R}_1$  and  $\text{R}_2$  are independently selected from linear or branched, saturated or unsaturated  $\text{C}_6\text{--}22$  hydrocarbyl,  $\text{R}_3$  is nothing or  $\text{C}_{1\text{--}20}$  hydrocarbyl,  $\text{R}_4$  is  $\text{C}_{1\text{--}6}$  alkyl or independent Z,  $\text{R}_5$  is H,  $\text{C}_{1\text{--}6}$  alkyl, independent Z, or the residue of the quaternizing agent, such as  $\text{C}_{1\text{--}30}$  alkyl or alkenyl, preferably,  $\text{C}_{1\text{--}7}$  alkyl or alkenyl,  $\text{R}_6$  is  $\text{C}_{1\text{--}6}$  alkyl or independent Z, and  $\text{X}^-$  is an ion selected from  $\text{Cl}^-$ ,  $\text{Br}^-$ ,  $\text{I}^-$ ,  $\text{F}^-$ ,  $\text{CH}_3\text{SO}_4^-$ ,  $\text{C}_2\text{H}_5\text{SO}_4^-$ ,  $\text{H}_2\text{PO}_4^-$ ,  $\text{HPO}_4^{2-}$ ,  $\text{PO}_4^{3-}$ ,  $\text{H}_2\text{PO}_3^-$ ,  $\text{HPO}_3^{2-}$ ,  $\text{H}_2\text{PO}_2^-$ ,  $\text{HPO}_2^{2-}$ , nitrate<sup>-</sup>, formate<sup>-</sup>, acetate<sup>-</sup>, propionate<sup>-</sup>, tartrate<sup>-</sup> and benzoate<sup>-</sup>, wherein the total charge of the anions equals the total charge of the cations and said process concerns the reaction of an unsaturated epoxide with an amine or a protonated amine, esterification of the formed intermediate, and optional quaternization.

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